

REMARKS

This Amendment is in response to the Office Action dated September 20, 2004. In the Office Action, the Examiner rejected claims 1-41 under 35 U.S.C. § 103(a) as being unpatentable over Stevens, U.S. Patent No. 6,633,976 (hereinafter *Stevens*), in view of Patel, U.S. Patent No. 5,999,989 (hereinafter *Patel*). Claims 8, 25, and 34 were also objected to for informalities.

Claims 1, 3, 4, 6, 8, 9, 11, 13, 15, 17-21, 23, 25, 27-31, 33-35, 37, 38 and 41 are amended as shown above. Specifically, independent claims 1, 15, 25, 34 are amended to more clearly recite features of the claimed invention. Claims 8, 25, and 34 have also been amended to correct the informalities identified by the Office Action. No claims are cancelled by the present amendment; thus claims 1-41 remain pending in the application. For the reasons set forth below, the Applicants respectfully request reconsideration and allowance of all pending claims.

Argument in Support of Allowance of Amended Claims

Claim Rejections - 35 U.S.C. § 103

To establish a *prima facie* case of obviousness, there must first be some suggestion or motivation to modify a reference or to combine references, and second be a reasonable expectation of success. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. Third, the prior art reference (or references when combined) must teach or suggest all the claim limitations. M.P.E.P. § 706.02(j) from *In Re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Where claimed subject matter has been rejected as obvious in view of a combination of prior art references, a proper analysis under § 103 requires, *inter alia*, consideration of two factors: (1) whether the prior art would have suggested to those of ordinary skill in the art that they should make the claimed device; and (2) whether the prior art would also have revealed that in so making, those of ordinary skill would have a reasonable

expectation of success. Both the suggestion and the reasonable expectation of success must be founded in the prior art, not in the Applicants' disclosure. *Amgen v. Chugai Pharmaceutical*, 927 F.2d 1200, 18 USPQ2d 1016 (Fed. Cir. 1991), *Fritsch v. Lin*, 21 USPQ2d 1731 (Bd. Pat. App. & Int'l 1991). An invention is non-obvious if the references fail not only to expressly disclose the claimed invention as a whole, but also to suggest to one of ordinary skill in the art modifications needed to meet all the claim limitations. *Litton Industrial Products, Inc. v. Solid State Systems Corp.*, 755 F.2d 158, 164, 225 USPQ 34, 38 (Fed. Cir. 1985).

The examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references. M.P.E.P. § 70602(j) from *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). Obviousness cannot be established by combining references without also providing evidence of the motivating force which would impel one skilled in the art to do what the patent applicant has done. M.P.E.P. § 2144 from *Ex parte Levengood*, 28 USPQ2d 1300, 1302 (Bd. Pat. App. & Inter. 1993) (emphasis added by M.P.E.P.).

Claim 1, has amended, now recites,

1. A method comprising:

starting execution of a basic input output system (BIOS), the BIOS having a plurality of **firmware** modules;

determining resources required by **the plurality of firmware modules** to operate;

scheduling modules of the plurality of firmware modules for execution in consideration of the required resource that are determined; and

dispatching the scheduled modules for execution. (Emphasis Added)

In support of the rejection of original claim 1 as unpatentable of *Stevens* in view of *Patel*, the examiner asserts the *Stevens* discloses all of the claim elements except for

the element of determining resources required by the plurality of (firmware) modules. In view of this deficiency, the Examiner asserts that this element is disclosed by *Patel*, stating, "*Patel* disclosed a method comprising: Determining resources required by a plurality of modules [devices] [col.4, ll.31-44]."

Claim 1 has been amended to make it clear that the plurality of modules for which a determination is made to what resources are required are firmware modules. The resource requirements referred to in *Patel* clearly concern hardware devices, and clearly *Patel* does not teach or fairly suggest the elements of determining resources required by ***the plurality of firmware modules*** to operate.

Column 4, lines 33-44 of *Patel* states,

Although different BIOS designs perform essentially the same steps in slightly different order, the BIOS must at some point *read registers within the devices* themselves to determine what devices exist on the system, and what the ***resource requirements are for those devices***. Only after reading *these registers* can the BIOS determine an appropriate allocation of system resources to configure a maximum number of devices. Also, the BIOS can determine from the information obtained from device registers what drivers to load into memory, to allow the microprocessor to access the device. The driver may be in the ROM as well, particularly if the driver is nonstandard; if multiple devices use the same driver, however, the BIOS may load all into memory when the system is initialized. (Emphasis added)

Furthermore, Col 6, lines 10-13 states,

The system BIOS is designed to have access to system resource information, and therefore "knows" what system resources are available. The devices are isolated and are read to determine the *resource requirements of the devices*. (Emphasis added)

while Col. 10, lines 59-65 states,

Once all the cards have been isolated, the configuration software (the E/ISA bus enumerator program in Windows 95) wakes up each card (transitioning the card from the sleep state to the configuration state), reads its configuration registers, and then returns the card to the sleep state. *In this way, the configuration software builds a comprehensive table of all resource requirements in the system.* (Emphasis added)

It is clear that the resource requirements referred to in *Patel* relate to resource requirements for hardware devices, and does not concern resource requirements of firmware modules. Thus, at least the third prong of the from *In Re Vaeck* test is not met. Accordingly, amended claim 1 is clearly patentable over the cited references.

With respect to independent claim 15, this amended claim is a Beauregard claim reciting software embodied on a machine readable medium for performing operations analogous to those recited in amended claim 1. Accordingly Claim 15 has clearly patentable over the cited references for reasons similar to those presented above in support of the patentability of claim 1.

Independent claim 25 is a system claim that has been amended to now recite,

25. A system, comprising:

- a plurality of hardware components;
- a first memory device to store a BIOS, the BIOS having a plurality of firmware modules, the BIOS further including:
 - means for determining resources required by the plurality of firmware modules to operate,
 - means for scheduling execution of modules of the plurality of firmware modules, and
 - means for dispatching scheduled modules for execution; and
 - a processor coupled to the plurality of hardware components and the first memory device. (Emphasis added)

The original version of the claim was rejected by the Examiner based on “each and every limitation of the claim is disclosed as discussed in reference to claim 1.” Applicants respectfully assert that the element of “means for determining resources required by the plurality of *firmware modules* to operate” is clearly not disclosed, taught, or fairly suggested by either the *Patel* reference or the *Stevens* reference. As discussed above, use of determining resource requirements in *Patel* relates to hardware devices,

not the resource requirements of firmware modules. While *Stevens* employs BIOS modules, there is no consideration of what resources are required for those BIOS modules. Accordingly, amended claim 25 is clearly patentable of the cited references.

Claim 34 is a system claim that has been amended to now recite,

34. A system, comprising:

a plurality of hardware components;

a first memory device to store a BIOS, the BIOS comprising:

a plurality of firmware modules, each module of the plurality of firmware modules to provide at least one service, ***at least two modules providing an inter-module interface to enable each of said at least two modules to call a service provided by another module;***

a core operatively coupled to the plurality of firmware modules, wherein the core, upon operation, ~~to select~~ selects for execution a set of ~~module~~ modules from the plurality of firmware modules;

a processor coupled to the plurality of hardware components and the first memory device. (Emphasis added)

Claim 34 has been amended to now include the element of ***at least two modules providing an inter-module interface to enable each of said at least two modules to call a service provided by another module***, which is somewhat analogous to the language recited in dependent claim 35, but not identical. In support of the rejection of original claim 35, the Examiner asserted that each and every limitation of the claim is discussed in reference to claims 1, 3, and 25. More specifically, with respect to the rejection of original claim 3, the Examiner asserts, “*Stevens* discloses calling a module [requested BIOS module] of the plurality of modules for execution during execution of another module [dispatch manager] of the plurality of modules [col. 5, ll.37-52].” Applicant agrees that *Stevens* does disclose the use of a dispatch manager module that calls another module. However, *Stevens* does not

disclose the use of at least two modules being enabled to call other modules. The *Stevens* clearly does not disclose or teach this element. Furthermore, *Stevens* clearly does not suggest this element.

In further detail, the use of the dispatch manager in *Stevens* is to dispatch BIOS modules 1-N (see Figs. 2 and 6). None of BIOS modules 1-N has facilities for calling another module, nor would there be any need to have this capability, and the BIOS modules 1-N have no interdependencies. In contrast, the firmware modules used under embodiments of the present invention may be configured to having interdependencies, wherein one module may need to call another module to perform a particular service. Such a configuration is claimed in amended claim 34, and clearly is not disclosed, taught, or fairly suggested by *Stevens* and/or *Patel*, alone or in combination. Accordingly, amended independent claim 34 is patentable over the cited art.

Conclusion

Overall, none of the references singly or in any motivated combination disclose, teach, or suggest what is recited in the independent claims. Thus, given the above amendments and accompanying remarks, independent claims 1, 15, 25, and 34 are now in condition for allowance. The dependent claims that depend directly or indirectly on these independent claims are likewise allowable based on at least the same reasons and based on the recitations contained in each dependent claim.

If the undersigned attorney has overlooked a teaching in any of the cited references that is relevant to the allowability of the claims, the Examiner is requested to specifically point out where such teaching may be found. Further, if there are any informalities or questions that can be addressed via telephone, the Examiner is encouraged to contact the undersigned attorney at (206) 292-8600.

Charge Deposit Account

Please charge our Deposit Account No. 02-2666 for any additional fee(s) that may be due in this matter, and please credit the same deposit account for any overpayment.

Respectfully submitted,

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